ASSIGNMENT 9

Textbook Assignment: "Direct Linear Measurements and Field Survey Safety." Pages 12-1 through 12-32.

9-1. The instrumentman is moving his right arm, which is extended upward, to the right. What message is he signaling to the rodman?

1. The rodman must move the rod to the right
2. The rodman must move the top of the rod to the right until it is vertical
3. The rodman must move the rod to the left
4. The rodman must move the top of the rod to the left until it is vertical

9-2. An instrumentman extends both arms upward, what does this indicate to the rodman?

1. Move forward
2. Reverse the rod
3. Pick up the instrument
4. Face the rod

9-3. What actions should the rodman take in response to a boost-the-rod signal?

1. Raise the rod and hold it at a specified distance above the ground
2. Turn the rod upside down
3. Raise the rod slowly until the instrumentman has read the whole-foot mark
4. Move the top of the rod, in a short arc, towards the instrument

9-4. The instrumentman extends both arms out horizontally from his shoulders and waves them up and down. What message is he giving to the rodman?

1. Come in
2. Pick up the instrument
3. All right
4. Move forward

9-5. In clearing a chaining line, what should you do when a valuable tree lies directly in your path?

1. Triangulate around it
2. Find the owner and request the tree to cut down
3. Cut it down
4. Choose a different chaining line

9-6. What term is used to describe consecutive sights taken through a telescope for the purpose of keeping chainmen on line?

1. Running line
2. Bench mark
3. Foresight
4. Backsight

9-7. When an instrumentman takes a sight along a portion of a line that has already been run, he is taking a

1. horizontal control step
2. vertical control step
3. foresight
4. backsight

9-8. For what reason should a chainman use an indicator that is narrower than a range pole when holding on or plumbing over a point for short sights?

1. To enable the instrumentman to align the indicator exactly with the vertical cross hair of his instrument
2. To enable the instrument to sight beyond the point
3. To enable the chainman to carry out his duties without becoming fatigued
4. To enable the chainman to hold the indicator steady

9-9. When running a line from point A to point B, what action does the instrumentman take when he "plunges" the telescope?

1. Turns the telescope 180° to the right from a sight on point A to a sight on point B
2. Rotates the telescope vertically from a sight on point A to a sight on point B
3. Turns the telescope 180° to the left from a sight on point A to a sight on point B
4. Moves the telescope from point A to point B

9-10. When plumbing over a point, which of the following actions should you take to overcome the problem of wind blowing the plumb bob back and forth?

1. Rest the point of the plumb bob on the point being plumbed
2. Bounce the point of the plumb bob slightly up and down on the point being plumbed
3. Shorten the plumb bob cord
4. Have a second person hold the point of the plumb bob steady on the point being plumbed

9-11. You should mark the horizontal location of a point over which to plumb a transit by which of the following means?

1. A flag or chaining pin
2. A leveling rod or range pole
3. A precise marker driven or set in the top of a hub
4. A bull-point or spad

9-12. Survey control points are marked in the field by which of the following means?

1. Bronze disks set in concrete
2. Center-punched metal rods driven flush with the ground
3. Wooden stakes or soda pop tops and nails driven flush with the ground
4. Each of the above

9-13. In addition to an identifying symbol, what marking is usually placed on a bench mark constructed by surveyors to identify a point for a construction project?

1. The abbreviation for bench mark, BM
2. The elevation of the bench mark
3. A number showing the order in which the bench mark is to be considered
4. A number denoting the distance of the bench mark from the point of beginning

9-14. As survey control points are established in the field, in what manner are they recorded in the field notebook?

1. By sketch
2. By word description
3. By either 1 or 2, or a combination of both
4. By detailed drawing

9-15. When an important station is marked with a hub, measurements are made to one or more other points and recorded in a field notebook to assure what information?

1. The hub can be relocated if plowed up and displaced
2. The hub location is precisely determined
3. The reference points are located accurately
4. The elevation of the hub can be determined

9-16. A hub can be made conspicuous to operators of earthmoving equipment by which of the following methods?

1. Casting a monument over the hub
2. Flagging or barricading
3. Marking the hub with a tack
4. Elevating the hub

9-17. What tool is used to mark a terminal point in a chaining operation when the distance being measured is greater than the tape length?

1. Surveyor's arrow
2. Chaining pin
3. Philadelphia rod
4. Range pole

9-18. In a three-man chaining party operation, who keeps a complete record of all measurements made by the party?

1. Head chainman
2. Rear chainman
3. Stretcherman
4. Instrumentman

9-19. In beginning a horizontal chaining operation, the rear chainman, with one chaining pin, stations himself at the starting point. The head chainman then moves toward the distant point to be measured holding (a) what part of the tape, and (b) a total of how many chaining pins?

1. (a) The 100-ft end (b) 1
2. (a) The 100-ft end (b) 10
3. (a) The zero end (b) 1
4. (a) The zero end (b) 10

9-20. When the tape is pulled forward for measuring the next 100-foot increment , what becomes of the chaining pins that were stuck in the ground by the head chainman and rear chainman?

1. Both pins are pulled and carried to the next stations
2. The head chainman leaves his pin in the ground; the rear chainman pulls and carries his pin
3. The head chainman pulls and carries his pin; the rear chainman leaves his pin in the ground
4. Both pins are left in the ground

9-21. When the head chainman runs out of chaining pins, what total number of pins should the rear chainman have?

1. 0
2. 1
3. 9
4. 10

9-22. Which of the following devices helps you apply the correct tension to a tape that is supported at its ends only?

1. Taping stool
2. Spring balance
3. Scissors clamp
4. Chaining buck

9-23. Including the O-foot mark, a total of how many whole-foot marks are contained on a 100-foot plus tape?

1. 99
2. 100
3. 101
4. 102

9-24. You are measuring the exact length of a building using a minus tape. What is the length of the building if you are holding a 65-foot mark at the outer face of the end wall when the head chainman calls out “Minus point three six”?

1. 63.64 ft
2. 64.36 ft
3. 64.64 ft
4. 65.36 ft

9-25. When slope chaining, which of the following information can you obtain by direct reading?

1. Slope angle only
2. Slope angle and slope distance
3. Horizontal distance only
4. Slope angle and horizontal distance

9-26. In horizontal chaining operations, a call of “Mark” from the rear chainman signals the head chainman to take which of the following actions?

1. Pull the end of the tape
2. Stick a chaining pin into the ground
3. Measure the tension on the tape
4. Release his plumb bob

9-27. Two men are making a horizontal measurement on a slope. The chainman on the lower level determines at what height the chainman on the higher level will hold his tape by using what instrument?

1. A transit
2. A theodolite
3. A hand level
4. A plumb bob

9-28. In which of the following situations should the breaking tape method of measuring be used?

1. Determining the horizontal distance between points on terrain havinq a 6-to-1 slope ratio
2. Measuring the width of major access roads
3. Measuring horizontal distances in heavily wooded and obstructed areas
4. All of the above

9-29. A two-man party is using the breaking chain-procedure and a 100-foot tape to chain a line on a steep slope. When, if ever, does the rear chainman give the front chainman a chaining pin?

1. Each time a 25-ft distance only is measured
2. Each time a 50-ft distance only is measured
3. Each time an even-foot distance of less than 100 ft is measured
4. Never

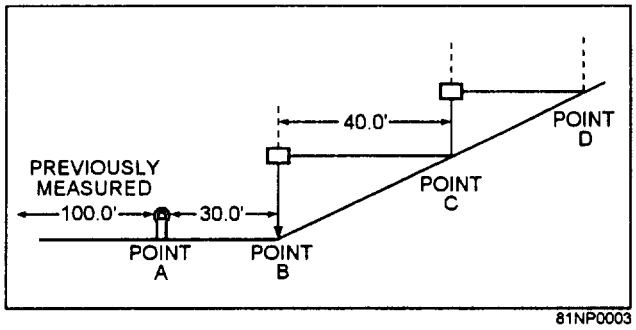

Figure 9A

IN ANSWERING QUESTION 9-30, REFER TO FIGURE 9A.

9-30. Assume that you continue measuring up the slope with a 100-foot tape. The head chainman is holding zero at point D. What is the horizontal distance between points C and D?

1. 10 ft
2. 15 ft
3. 25 ft
4. 30 ft

9-31. The standard error of a 100-foot tape can be determined in which of the following ways?

1. By calibration by the Bureau of Standards
2. By comparison with a length of a calibrated 100-foot tape
3. By comparison with a known 100-foot distance
4. By each of the above means

9-32. By calibrating a tape, you should remember that the standard tension and corresponding temperature for a 100-foot tape supported throughout is

1. 5 lb, 65°F
2. 10 lb, 68°F
3. 15 lb, 68°F
4. 20 lb, 65°F

9-33. A 100-foot tape has a standard error of 0.003 feet. What is the total error for a taped distance of 471.56 feet? (Round off to the nearest 0.01 foot.)

1. 0.00 ft
2. 0.01 ft
3. 0.02 ft
4. 0.05 ft

9-34. Under standard conditions, a tape indicates 100.00 feet when it actually should measure 99.996 feet . Using this tape, how far should you measure to set a point 450 feet away from another point?

1. 449.96 ft
2. 449.98 ft
3. 450.02 ft
4. 450.04 ft

9-35. A tape has a standard error which causes it to indicate 99.996 feet when it is actually measuring 100.00 feet. What is the actual distance between two points if the taped distance is 259.05 feet?

1. 259.04 ft
2. 259.05 ft
3. 259.06 ft
4. 260.00 ft

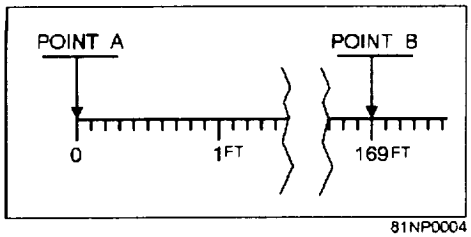

Figure 9B

IN ANSWERING QUESTIONS 9-36 and 9-37, REFER TO FIGURE 9B.

9-36. The steel tape shown is used to lay out the distance from point A to point B. If the thermometer attached to the tape reads 79°F, what is the actual distance laid to offset the effect of change in temperature?

1. 168.09 ft
2. 168.99 ft
3. 169.01 ft
4. 169.07 ft

9-37. At another time, the steel tape shown is used to measure the distance from point A to point B, but this time, the thermometer reads 35°F. How much should you add or subtract to the measurement in order to compensate for the change in temperature?

1. Add 0.02 ft
2. Subtract 0.02 ft
3. Add 0.04 ft
4. Subtract 0.04 ft

9-38. A 3-pound, 100-foot tape is used to measure a distance of 60 feet. If the chainman maintained a pull of 20 pounds, what is the correction of sag?

1. 0.02 ft
2. 0.03 ft
3. 0.04 ft
4. 0.05 ft

9-39. When is slope correction subtracted from the taped slope distance?

1. When taping uphill only
2. When taping downhill only
3. When applying the slope correction formula for 10% slopes Only
4. Always

9-40. When determining accurate slope correction, what is the maximum slope for which you should use this formula?

$$C_h = \frac{h^2}{2s}$$

1. 5%
2. 10%
3. 20%
4. 30%

9-41. The difference in elevation between two points is 4.0 feet. If the slope distance between the points is 125.00 feet, what is the horizontal distance?

1. 124.936 ft
2. 124.978 ft
3. 125.032 ft
4. 125.064 ft

9-42. Rules pertaining to the taking of chaining notes require that the notes reflect which of the following qualities?

1. Completeness
2. Accuracy
3. Legibility
4. All of the above

9-43. What is the proper way to correct an error in field notes?

1. Erase the error
2. Blot out the error
3. Draw a line through the error and enter the correct information above
4. Circle and initial the error

IN ANSWERING QUESTION 9-44, REFER TO FIGURE 12-17 IN YOUR TEXTBOOK.

9-44. What three types of corrections are made in the slope chaining measurements?

1. Tension, temperature, and humidity
2. Altitude, temperature, and wind
3. Hub, bench mark, and station
4. Tape, temperature, and slope

9-45. In which of the following ratios do the lengths of the sides indicate that the triangle is a right triangle?

1. 10:15:20
2. 18:24:30
3. 20:30:40
4. 25:30:40

IN ANSWERING QUESTION 9-46, REFER TO FIGURE 12-18 IN YOUR TEXTBOOK.

9-46. Assume that you are laying out a right angle, but you are using a 50-foot tape instead of a 100-foot tape, and the distance from D to C is 15 feet. You then set the tape with its 0-foot end on D and its 50-foot end on C. Your 50-foot tape will form two legs of a right triangle if the man running out the bight draws the tape taut while holding the 25-foot mark in contact with what other mark?

1. 20-ft mark
2. 30-ft mark
3. 35-ft mark
4. 40-ft mark

9-47. Computing the size of an angle by the chord method involves the partial solution of a triangle in which the only known values are which of the following measurements?

1. The sizes of two angles
2. The lengths of the sides
3. The sizes of two angles and length of one side
4. The lengths of two sides and the size of one angle

9-48. What method of computing the size of an angle X involves the partial solution of a right triangle in which X is an acute angle and two sides of the triangle (the side opposite X and the side adjacent to X) are measured?

1. Chord method
2. Sine method
3. Tangent method
4. Sum of squares method

9-49. Reading a tape upside down and obtaining, for example, 69 instead of 96 and leaving out an entire tape length are samples of

1. natural errors
2. instrumental errors
3. personal errors
4. mistakes

9-50. Concerning the care of steel tapes, three of the following statements represent correct guidelines. Which one does NOT?

1. Whenever a tape is laid across a gravel road, all drivers should be warned to slow their vehicles down before crossing over the tape
2. While dragging the tape, the head chainman should not ask someone else to help by picking up the free end
3. When given a choice between a tape which has a kink and one which does not, you should use the undamaged one when possible
4. When dragging a tape, keep it straight

9-51. In caring for and maintaining his steel tapes, a chainman should make it a practice to take which of the following steps?

1. Inspect all tapes weekly
2. Wipe them dry before storing them
3. Coat them from time to time with light rust-resistant oil
4. All of the above

9-52. Listed are the steps for splicinq a broken steel tape. Identify the proper sequence.

A. Align and rivet the repair stock at one end of the break.
B. Insert one rivet at a time and arrange rivets in a triangular pattern.
C. Place the repair stock on the face of the other section of the tape, using the calibration section as a measure for the break splice.
D. Use a three-edge file to partially cut through the surplus stock.

1. A, B, C, D
2. A, C, B, D
3. C, A, B, D
4. C, B, A, C

9-53. In which of the following ways are microwave and light wave EDM devices the same?

1. Both have interchangeable transmitters and receivers
2. Both require the application of corrections for atmospheric conditions
3. Both are used for the direct measurement of distances
4. Both should be used for only short distances of less than 600 feet

9-54. Which of the following descriptions is characteristic of most poisonous snakes found on the North American continent?

1. Brightly colored
2. Smaller than nonpoisonous snakes
3. Flat headed and thick bodied
4. Equipped with tail rattles

9-55. What North American poisonous snake shows its white inside mouth lining just before striking?

1. Copperhead
2. Rattler
3. Coral
4. Water moccasin

9-56. What symptom is usually the first to be noticed by someone who has come in contact with poison ivy or poison oak?

1. A cluster of large blisters
2. A deep red rash
3. An extreme itching
4. A cluster of small blisters

9-57. A poisonous plant has a juice that is nonvolatile. This means this plant is poisonous and the juice of this plant will

1. evaporate quickly
2. not stain clothing
3. not evaporate quickly
4. not nifect a person unless he atually touches the plant

9-58. Poisonous sumac can be distinguished from nonpoisonous sumac in what way?

1. It bears red berries
2. It has more leaves
3. It bears white fruit
4. It grows closer to the ground

9-59. The first-aid procedure for plant poisoning of the skin consists of which of the following steps?

1. Soaping and rinsing frequently
2. Applying a light coat of oil
3. Obtaining immediate medical care
4. Soaping with an alkaline laundry soap and not rinsing off

9-60. Of the following accident prevention guidelines or measures, which one is the most important to remember?

1. Never swing a machete within 10 ft of another person
2. Most accidents can be prevented by the application of common sense and good judgment
3. Never work in or on trees during high wind or thunderstorms
4. Properly sharpened axe blades are safer than blunt or nicked ones

9-61. While surveying, the members of a field party must work on and near a heavily traveled highway that they are forced to cross several times a day. They can reduce the danger of being struck by a moving vehicle by taking which of the following precautions?

1. Wearing brightly colored outer clothing
2. Detouring traffic away from the field party
3. Erecting conspicuous signs and barriers
4. All of the above